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ABSTRACT

This study investigates selectivity in teacher education. Using perspectives afforded by institutional admissions practices, teacher effectiveness research, and selected public school influences, the study explored both current policies and procedures in the selection of preservice students and the usefulness of a number of biographical, demographic, academic, personality, and professional performance measures for predicting teaching effectiveness. Principal study methods included a survey of ninety-two teacher education program units in Ohio and retrieval of institutional data for 391 subjects randomly selected from applicants to one program unit over a five-year period. Follow-up data for some unit graduates were assembled as well. Findings of the study revealed that a modest proportion of teaching effectiveness at program completion may be predicted prior to program admission, especially on the basis of personality/attitudinal measures. However, findings did not reveal a relationship between institutional judgments of effectiveness in a program, on the one hand, and professional judgments of effectiveness in an employment situation, in the other. (Author)

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A STUDY OF THE RELIABILITY, VALIDITY, AND USEFULNESS OF IDENTIFIED PRE-TEACHING PREDICTORS

Project 419 R & D
Ohio Department of Education

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Traditionally, criteria used for the recruitment, selection, admission, counseling, and retention of pre-service teacher education students have reflected emphases on academic performance and selected personal attributes. Academic performance is most often measured by grade-point average; personal attributes are less well defined. Little guidance is offered teacher education institutions attempting greater rigor in this area. The National Council for the Accreditation of Teacher Education's prescribed standards state:

> The institution applies specific criteria for admission to teacher education programs; these criteria require the use of both objective and subjective data (1972, p. 7).

Recently, the Ohio Board of Education adopted the following standards for institutional approval in teacher education:

> Continuous recruitment and counseling shall be conducted to encourage the enrollment of individuals who evidence potential to become outstanding teachers.
>
> Teacher education students shall be selected and admitted pursuant to criteria and procedures...which are conducive to the acquisition of the body of knowledge, skills, attitudes, and values necessary for becoming an effective teacher...(which include) those characteristics necessary...to contribute successfully to pupil growth and development; and tolerance for, and understanding of, human diversity.
>
> Retention of teacher education students shall be pursuant to establish criteria...(and) progress toward acquiring and utilizing the requisite knowledge, skills, attitudes, and values (1975, p. 3).

Clearly, the adequacy of criteria for each stage of institutional selection in teacher education is to be judged on the basis of predicting teaching effectiveness.

PROBLEM and PURPOSE

Who is likely to become an "effective" or "outstanding" teacher? What are valid, reliable, and useful predictors of effectiveness which are, or might be, utilized at various stages of institutional selection? Studies of institutional

policies and procedures lend one perspective. Approaches to teacher effectiveness research provide another. A third perspective is afforded by conventional wisdom and school district employment practices.

Institutional Practices

Brubaker and Patton (1974) identified three stages in the historical evolution of institutional selection-retention policies and practices in teacher education. Requirements in a first stage (1839-1900) included female sex over sixteen years of age, completion of eight years of elementary school, satisfactory performance on subject exams, testimony of others affirming good physical, intellectual, and moral character, and a promise to teach school. A second stage (1901-1930) followed transformation of two-year "normal schools" to four-year colleges and "upgraded" requirements to include a high school diploma. Periods of "oversupply" in the teaching force which have occured in the last forty-five years characterize a third stage (1931-present) in which selective admission (eg., via program-specific screening) and selective retention (eg., via C/PBTE) have replaced earlier modes.

Four studies illustrate contemporary criteria and procedures. In a survey of 386 colleges and universities, Haberman (1972, p. 14) identified college grades, verbal proficiency, and academic references as the most frequently employed selection criteria. Carpenter (1973) surveyed selection criteria at 180 AACTE institutions. Table 1 in the Appendix displays a summary of his findings. In general, Carpenter found academic achievement to be the most frequently employed criterion (pp. 50-52). Brubaker (1974) examined current selection-retention policies in teacher education at 98 NCACSS/NCATE institutions. He found minimal selectivity in which: (1) indices of scholarly aptitude were the most frequently employed criterion, (2) there were few admissions denials, and (3) "undersirables" were excluded prior to application for admission. In a study of

Ohio teacher education institutions, Blankenship and his associates (1970) reported that "...pre-service programs among sample institutions tended to be more alike than different" (p. 9). Criteria for admission most often included (1) high school graduate status with prescribed Carnegie units, (2) minimum SAT and/or ACT scores necessary for undergraduate admissions, and (3) satisfactory campus visit or interview.

Brubaker (1974, p. 2) observed that the "...right of teacher education institutions to select persons for admission to teacher preparation programs has seldom been questioned. However, assumptions regarding their ability to select with reasonable assurance of success persons who will effectively discharge teaching responsibilities in an increasingly complex world has been questioned." Haberman advances twenty-three reasons universities can't educate teachers (in Horton and Horton, 1974, pp. 97-104). One proposition is falsely assuming that "...students who select themselves for teaching are open to change" (p. 99). Brubaker and Patton (1974) offer two possible explanations of teacher education's apparent reluctance to be more selective: (1) inherent conflict with commitment to equal education opportunity, and (2) ambiguity of "successful teaching" (p. 8).

The Howsam Commission put the problem this way (Howsam et al, 1976, p. 113):

> A profession that controls so little of its preparation seriously compromises quality control. Furthermore, it is difficult to develop a sense of pride in a profession with only the junior and senior (undergraduate) years available for training. A profession so vague in defining its role and functions and so impotent in its control of training will continue to face recruitment problems.

Earlier, Haberman (1974, pp. 234-234) outlined these propositions regarding selectivity in teacher education:

1. Admission to professional education is a professional decision, not a student right;
2. Selection criteria derive from program goals and the capabilities needed by individuals to achieve those goals;

3. External selection must complement self-selection;
4. Professional experts involved in selection include more than college faculty;
5. College screening devices must be replaced by professional selection criteria;
6. Selection is a process, not an event;
7. Admission quotas are a function of faculty and clincal resources;
8. Selection must assess the potential of candidates to function as continual learners;
9. Selection must include procedures for screening adults as well as college youth;
10. More rigid adherence to existing criteria will not improve selection; (and)
11. All program changes made in the future should take account of the impact on selection.

To date, institutional policies and practices appear to have changed little in these directions.

With respect to selection in teacher education, Ryan and his colleagues (1972, pp. 19-28) found consistently low academic standards and low status within the university. They noted that, among sixteen groups taking the Graduate Record Examination, undergraduate education majors ranked lowest according to surveys done by Educational Testing Service. However, Ryan (1973) identified an interesting paradox. He also found that the highest proportion of students identified as "academically gifted" apply for teacher education to begin with.

In an initial report of a longitudinal study of the selection process in teacher education, Wilk and Cook (1963) describe individual as well as institutional dimensions of decision-making.

> "Students must decide that they ought to be teachers, and teacher education institutions must decide that students may become teachers" (p. 1).

Haberman (1972) identified a number of sources which influence an individual's choice to pursue, or not pursue, a pre-service teacher education program. These sources include: (1) influences of childhood, early socialization, and initial schooling experiences; (2) development of self-concept; (3) potential cognitive advances in early adult years; and (4) college environment factors (pp. 1-13).

Blair and his associates (1975) studied motives for entering teaching. Among approximately 300 undergraduates, they found these three motives most frequently: (1) idealism/altruism (42%), (2) positive employment potential (29%), and (3) affinity for children (21%). Baumgartner and Carlson (1974) found a "grapevine effect" among students where there were known selection procedures. In effect, student awareness of the existence of reportedly stringent selection criteria and/or procedures discouraged "less able" potential applicants. Fuller and Brown have examined personal aspects of the contexts of becoming a teacher and the student's perceptions of the tasks of teaching (in Ryan, 1975, pp. 25-52). They found these four kinds of criteria implicitly at work in individual-institutional interaction: (1) sex, (2) warmth and supportiveness, (3) orderliness, dependence, and consistency, and (4) flexibility. They concluded that "entrants into teaching apparently select themselves" and that this selection process, though carried out by neophyte aspirants and beginners, is surprisingly efficient in producing relatively homogenous professional subgroups" (p. 28). They identify a number of "motives" for entering teaching as well as a number of concerns of pre-service students which interact as informal selection/retention devices (pp. 36-39). Wilk and his colleagues (1969) found grade-point average the only variable identified which was useful for distinguishing between "persists" and "nonpersists." Thus, selectivity in teacher education may need to consider the motivations, needs, interests, and responses of potential students as well as the interests and demands of the institution.

Predicting Effectiveness

Shavelson and Dempsey (1976) noted that most research on teaching effectiveness utilized either a teaching processes model or a teaching outcomes model. They observed that, in the latter instance, effectiveness is most often equated with student achievement. McNeil and Popham favor an outcomes model when they

contend that "a focus on pupils reveals far more about the effectiveness of teachers than does direct study of teachers" (in Travers, 1973, p. 218).

In a synthesis of selected recent research, Cruickshank (1976) identified the principal variables most frequently utilized in "teacher effects" research. These included achievement indices from standardized reading, mathematics, and other "basic skills" measures (dependent variables) and aspects of time, content, materials, organization, activity, teacher-student interaction, and pupil behavior (independent variables). Rosenshine and Furst synthesized research relating teacher behaviors and student achievement (in Smith et al, 1969, pp. 37-72). Teacher behaviors (independent variables) they identified included cognitive clarity of presentation, variability, enthusiasm, task-orientation, opportunities for student mastery, use of student input, criticism/control, use of structuring comments, question types, probing, and level of substantive difficulty. Rosenshine (1971) reviewed and summarized empirical studies of teacher factors related to student achievement. He found that general ratings of teacher behavior have a particularly good history as a research variable i.e., consistently and significantly high correlation with student achievement.

Berliner (1976) identified a number of problems associated with attempts to relate teacher behavior and student achievement. Failure to establish an empirical relationship stems, in his opinion, from nonsensical and/or weak research designs and data analyses, and he discussed a number of specific instrumentation, methodological, and statistics problems in this regard. Shavelson and Dempsey (1976, pp. 553-554) found that "...consistent conclusions from research on teaching are that teacher effects on pupil outcomes are unstable." In assessing the consequent lack of generalizability of outcomes studies, these authors considered conventional measurement problems as one explanation, but they concluded that:

> Another possible explanation is that the stability of behavioral measurements used in most research has not been adequately examined or established... In short, the measurement is taken in one particular setting, at a particular point in time, but the measurement is interpreted as generalized over many settings at different points in time (p. 554).

Rosenshine and Furst state further that "it is possible that patterns of effective teaching are so idiosyncratic that they will never be isolated" (in Travers, 1973, p. 175).

A second approach to defining and predicting effectiveness may stem from teaching processes and their characteristics. Medley and Mitzel synthesized early work on direct observations of classroom behaviors, especially dimensions of teaching process (in Gage, 1963, pp. 247-328). Their early stance expressed confidence in utilizing process indices as measures of effectiveness (p. 258):

> The fact that ratings of teacher effectiveness have no discernible relationship to effectiveness does not mean that effectiveness cannot be measured in process. Since it may be assumed that whatever effect a teacher has on pupils must result from his behaviors, it is only necessary to identify the crucial behaviors, record them, and score them properly to measure effectiveness in process.

Rosenshine and Furst reviewed category systems (in Travers, 1973, pp. 122-183). Based on contentions of the individual originators, they initially classified the sources of such systems as: (1) explicit or implicit theoretical or empirical bases, (2) syntheses of existing systems, or (3) originator idiosyncrasy. However, their own examinations of these claims reveal more reliance on personal idiosyncrasy than on either of the other two sources for construction of category systems.

Turner (1973) discusses a number of criteria for identifying the effective teacher. In addition to teaching outcomes and processes, these criteria may involve a variety of teacher characteristics variables. He then notes that (Turner, 1973, p. 6) "one difficulty in optimizing teacher effectiveness is

that the criteria observed above, all of which are important, do not invariably correlate positively with one another. In certain instances, inverse correlations may appear." Thus, there is little clear direction in categorizing teaching processes, and the use of these systems to evaluate teacher effectiveness may require judgments of various professionals, eg., teacher educators, school administrators, students.

Conventional Wisdom

Hamacheck constructed four categories of characteristics of "good teachers" (in Horton and Horton, 1974, pp. 127- 135). Invoking conventional wisdom, he contends that "...we do know who the ...competent teachers is" (p. 127). Hamacheck lists a number of conventionally accepted personal qualities, instructional procedures and interaction styles, perceptions of others, and perceptions of self characteristic of the most effective teachers. He concludes that "flexibility" is the most often used, most comprehensive, and most useful description.

Teacher employment and evaluation practices of school systems reveal reliance on conventional wisdom reinforced by some results of teaching process research. Factors such as those identified by Hamacheck may be important in this regard.

School systems also appear to rely on other factors. Deneen and others (1972) surveyed school districts regarding bases for selecting new staff and relative emphases on identified qualities. They found the four most frequently identified bases to be college grades, student teaching evaluation(s), written references and/or recommendations, and results of the National Teachers Examination. They found greater emphasis on intellectual and affective qualities (used equally frequently) and lesser emphasis on social and physical qualities.

In a study of 925 elementary and secondary school teachers, Arend (1973) examined relationships between rated "effectiveness" in the second year of teaching

and a number of variables constructed from initial employment data. (In this case, "effectiveness" was defined simply as "among the best teachers"; ratings were done by principals and supervisors.) Among all of the variables (predictors) identified--including results of an employment interview, prior references, years of teaching experience, academic and demographic variables --the results of data analyses were significant only with respect to location of student teaching and sex. Arend found that teachers known to the district for some time prior to initial employment (usually via "local" student teaching) and female teachers were rated significantly higher than "foreign" teachers and male teachers.

McNeil and Popham observe that "it has been shown that principals prefer to hire teachers on the basis of expressive characteristics rather than instrumental characteristics" (in Travers, 1973, p. 237). Rice (1975) found that "...altering responses on a teacher's application form for information considered of little or no importance for effective teaching performance had a significant effect on (a) the evaluation of the teacher's personality traits and (b) the likelihood of her receiving a future interview" (p. 661). Thus, she concluded that variables such as father's occupation, size of family and family income level, church preference, and non-professional organization membership status were important factors in the employment and evaluation of teachers. Predicting teaching effectiveness, therefore, may need to consider characteristics of the potential teaching environment as well as characteristics of the potential teacher.

DESIGN

This study addressed the question: What are valid, reliable, and useful criteria for the recruitment, counseling, selection, admission, and retention of pre-service teacher education students? It was assumed that criteria for

these activities would not differ substantively, and that it would be useful to focus on selection and admission in particular. In order to address the questions raised, two courses of action were pursued.

First, a survey of ninety-two pre-service program units* in Ohio's fifty-one teacher education institutions was conducted to identify and describe current criteria and procedures for selection and/or admission to teacher education. Likewise, a subsequent and more specific survey was made in one teacher education program unit from which subjects for the second part of this study were chosen.

Secondly, a number of characteristics of pre-service teacher candidates in one institutional program unit were investigated to establish their relationship(s) to teaching performance variables as measured, first, in student teaching and, secondly, in a later contract teaching situation.

Samples

The sample of subjects for the survey of Ohio institutional selection/admission criteria and procedures included the entire population of ninety-two pre-service program units identified. In each instance, a survey was directed to the attention of the unit administrative head or chair.

The sample of subjects for the investigation of student characteristics and teaching performance variables included two components. First, a component (A) was selected randomly from the population of candidates for a pre-service program in a large teacher education department in a multi-campus state university. The 391 subjects thus selected included approximately 18% of the applicants within each of five application years (1971-76) and within each admittance decision

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*A "program unit" was defined as a separate organizational or administrative unit within a college, school, division, or department of education with primary responsibility for a pre-service certificate program.

category for the university's main and regional campuses. Table 2 in the Appendix displays sample and population sizes for each of the cells identified. Secondly, a component (F) was selected from identified registrants in the University's educational placement office who had completed the pre-service program in question and who had received the baccalaureate degree and an initial teaching certificate in the period, 1973-76. Those selected were persons currently employed in an Ohio teaching position for which they had been trained. The 172 subjects thus selected included approximately 74% of the 233 initially identified.

Types of Data Utilized

For the first part of the study, a Teacher Education Selection Questionnaire was constructed. The questionnaire solicited institutional data regarding criteria, procedures, instrumentation, timing, and internal evaluation for selection/admission for pre-service programs. Additionally, faculty members in one program unit were surveyed further with respect to the relative importance of specifically identified measures utilized in their own selective admissions process.

Part two of this exploratory study sought to utilize the widest variety of student characteristics and teaching performance data already available. In addition, some student follow-up teaching performance data were gathered. In all, as many as 178 data were assembled for each of the subjects in sample components A and F. Figure 1 depicts six intersecting data components for the student sample and specifies relative component sizes.

The six data components for this sample included a variety of biographic, demographic, academic, personality, and teaching performance data. Component A was application data for the 391 student subjects selected for study. These data included selected requisite course grades, admissions tests scores, grade-

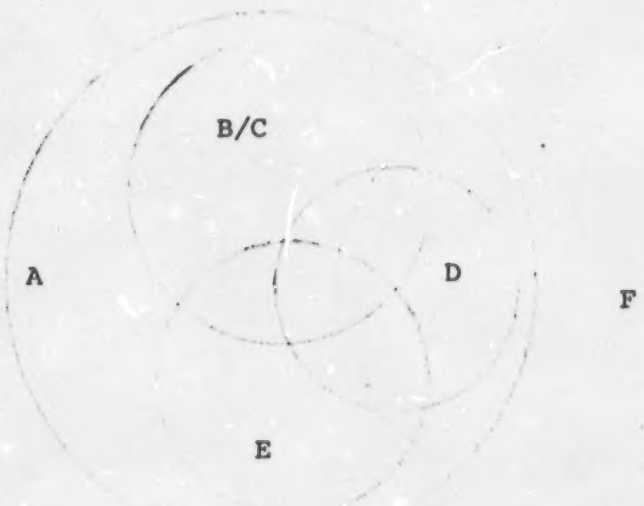

Figure 1
Pre-Service/In-Service Sample
With Intersecting Data Components

A - Application Data (90<N<392)
B/C - Professional Program Data, Including Student Teaching (62<N<267)
D - American College Test Results (N=83)
E - Personality Measures (113<N<124)
F - Follow-Up Evaluations (70<N<125)

point average, interview ratings, and indices for biographic and demographic factors. Components B/C were professional program (junior and senior undergraduate) progress data subsequent to admission to the program (B), up to and including student teaching performance ratings (C) and program completion. These data were professional course grades and teaching performance ratings given by college and university staff. Components D and E were American College Test (ACT) results (D) and personality measures data (E). ACT results were gathered for those subjects who, prior to undergraduate admission, took the test as a part of the university's orientation and testing program. Personality measures were the Myers-Briggs Indicator (Buros, 1965, pp. 321-326) and the

Edwards Personal Preference Schedule (Buros, 1972, pp. 139-141) administered as a part of the university's early experiencing program. Component F was ratings of teaching performance made by school administrators. Table 3 identifies the specific data included in each component, and it specifies the number of subjects for whom these data were assembled.

Data Analyses

Analyses of the survey responses included construction of needed response categories and specified categorical frequencies. Results of these analyses were compared with findings of previous studies already described.

Analyses of the student characteristics and professional performance data included item, correlation, and regression analyses and selected analyses of variance. Frequencies, means, and standard deviations were computed for each of the 178 data assembled. Correlation analysis and analyses of variance were utilized to identify initial relationships. Results of the correlation analysis were a basis for subsequent regression analyses. Tests of reliability were made for the application interview rating scales and for the teaching performance scales.

FINDINGS

Of ninety-two pre-service program units in fifty-one Ohio teacher education institutions contacted, forty-four (or 48%) responded to one or more items on the Teacher Education Selection Questionnaire. Table 4 displays results of item analyses.

Nearly all respondents reported use of academic criteria in selection and admission, most often specified grade-point average. Two of the eight academic criteria identified involve completion of a course of action, i.e., specified course(s) and/or program, without reference to a desirable level of performance. About half the respondents reported use of skill and/or attitudinal criteria.

Of those who indicated use of skill criteria, most reported employment of measures of verbal competence; a very few require completion of an early professional experience program. About half the respondents also reported use of affective criteria, but most were unable to be specific in this regard.

Respondents were least detailed regarding procedures for admissions. Slightly more than half reported use of a formal application form for teacher education; about one-fourth reported use of an admission review committee.

Respondents reported heavy reliance on reports of course grades and/or test scores as selection/admissions "instrumentation." In addition, about half the respondents rely on reported evaluations of early professional experiences, and about half rely on a variety of personal and professional recommendations.

Nearly three-fourths of the respondents reported application for teacher education programs ordinarily occurred in the freshman or sophomore year and admission to the programs in the sophomore or junior years. In several instances, application/admission to a teacher education program is synonymous or concurrent with application/admission to the institution.

Ten percent of the respondents reported annual reviews of selection/admission criteria and procedures; twenty percent reported that the most recent review had occurred prior to 1970. About one-third of these reviews reportedly are conducted by special committees; about one-third are a part of regular program unit business. Nearly all respondents reported follow-up studies of graduates, most involving the use of mailed questionnaires.

Table 5 displays results of a survey of faculty members who have served on a program unit selective admissions committee in a multi-campus teacher education institution during the past five years. Of fifteen respondents, all indicated that routine attention is given grade-point average, scores on specified standardized tests, and interview ratings. Somewhat fewer reported general inspection

of grades in specified requisite courses, biographical and attitudinal information provided by an applicant, written recommendation(s) of others, and campus of residence. Two-thirds of the respondents reported attention to evaluations of early professional experiences; two or three each reported attention to scores on a personal beliefs inventory, applicant's sex, and minority status. Respondents most frequently reported "particular attention" to grade-point averages and standardized test scores, least frequently to unstructured evaluations and written recommendations.

Table 6 displays correlations of college or university supervisors ratings of forty-four student teaching performance variables, on the one hand, with thirty-seven student characteristics variables constructed from data available prior to student teaching, on the other hand. In the correlation analysis, these thirty-seven variables were separated from the other thirty continuous scale variables in data components A, B, D and E because of one or more significant ($p < .05$) correlations with the student teaching variables (data component C) at a 0.300+ level.

Five sets of observations can be made here. First, each of twelve of the student characteristics variables correlates significantly at the 0.300+ level with five or more student teaching variables. These twelve include grades in three courses, seven of eight admissions interview ratings, and indices for two scales on the Edwards schedule. However, the correlations with the introductory mathematics course grade and the Edwards scales are negative.

Secondly, all student teaching performance variables are correlated, at the level cited, with one or more student characteristics variables. The pattern of correlations, both positive and negative, is complex and subject to further analyses.

Thirdly, three student characteristics variables--grades in two prerequisite courses and the index for one Edwards scale--correlate significantly at the 0.500+ level with the greatest numbers of ratings of student teaching performance. At this level, the grade for a psychology of learning survey correlates positively with twenty-five ratings; the grade in an introductory mathematics course correlates negatively with eight ratings; the Edwards "endurance" scale correlates negatively with three ratings.

Fourthly, each of two student characteristic variables--one course grade and one Edwards index--correlates positively with some student teaching ratings and negatively with others.

Finally, grade-point average at admission to the professional program does not correlate significantly with any student teaching ratings. Grade-point average at program completion correlates positively at a significant level with only three of the ratings.

Results of tests of reliability for the rating scales used to construct data components C and F were coefficients of 0.975 and 0.967 respectively.

Table 7 displays F-ratios for analyses of variance for nine ratings of student teaching performance for which results were significant ($p < .05$). The student characteristics factors (non-continuous variables in data component A) which produced one or more significant results are geographical division and campus, application year, academic origin, and sex. Thus, students on two campuses were rated significantly higher than others on one student teaching performance variable, and main campus students were rated significantly higher than others on two performance variables. Likewise, there were significant differences in ratings on one performance variable for groups of students admitted to a teacher education program in different years, and there were

significant differences on two variables for groups of students admitted from the same versus other institutions. Finally, females were rated significantly higher than males on five student teaching performance variables.

Student characteristics variables selected most often for regression equations include interview ratings of insight, stability, self-image, and social development; an index of openness and flexibility; and indices for five scales on the personality measures.

Table 8 displays results of the regression analyses. Student characteristics variables selected for the overall (Total) regression equation account for 9.3% of the variance on all student teaching performance variables combined. Characteristics variables selected for equations for each of five subsets of student teaching performance variables (Factor I, Factor II, ...Factor V) account for as much as 9.8% and as little as 5.3% of the variance. Thus, indices for identified characteristics are useful for predicting a portion of the differences among pre-service students on student teaching performance ratings.

However, correlation analyses of ratings for selected groups of variables and for total teaching performance made, on the one hand, by college or university supervisors during student teaching and, on the other hand, in the first three years of employment as a fulltime teacher produced significant ($p < .05$) coefficients in only four cases (variable pairs 68 and 165 ($r=0.452$), 70 and 167 ($r=0.625$), and 71 and 168 ($r=0.583$), and 72 and 169 ($r=0.463$). And they failed to produce a significant coefficient overall.

CONCLUSIONS and RECOMMENDATIONS

Findings of this exploratory study represent a beginning of an attempt to address issues of selectivity in teacher education empirically. However, these findings, together with findings of studies in related areas, suggest tentative conclusions. Some recommendations for consideration by teacher education institutions in Ohio are appropriate.

Conclusions

Studies of institutional admissions practices in teacher education, outcomes and processes models in teacher effectiveness, and public school employment and evaluation practices suggest two sets of conclusions which findings of this study support.

First, examination of current institutional practices suggests that teacher education, especially in Ohio, is in earlier rather than later phases of a "Stage Three" in the evolution of selection-retention policies and procedures. Though academic success may be shown to be a necessary but not sufficient condition of teaching effectiveness, most institutions have not yet constructed specific measures of the non-academic conditions of effectiveness. Further, there would appear to be little agreement between teacher education faculty and public school administrators on the nature or relative importance of non-academic criteria and measures employed. Consensus among wider professional constituencies in this regard seems most unlikely at present.

Secondly, currently-available teaching processes models and observation instruments probably will not be very useful as measures of teaching effectiveness. These models and instruments tend to reflect individual investigator bias in an area where the judgments of several different individuals and groups are both necessary and valuable. Their usefulness is also doubtful in view of a "situation-specific" perspective of teaching effectiveness, especially in light of known individual/institutional, institutional/professional, and intra-professional value disparities and the effective, if informal, non-institutional modes of selection at all stages of the process.

Recommendations

Three sets of recommendations are proposed to teacher education institutions as they work with others to implement standards for recruitment, selection,

admission, counseling and retention which are valid, reliable, and useful predictors of teaching effectiveness.

First, principal attention in the construction of criteria, and in the choice of measures of them, should be in non-academic areas. Personality and attitudinal variables seem especially promising here, but some cautions may need to be observed. Measures of such variables, especially ratings based on individual admissions interviews with candidates, probably need as much systematic structure and credibility as other measures apparently have. Measures of personality and attitudinal variables should reflect consensus about what it is important to measure, i.e., to know, in order to predict ultimate teaching success.

Secondly, new institutional structures or arrangements should establish greater professional identity and program autonomy for teacher education. Structures and arrangements which separate institutional and professional admission are barely a minimum in this regard. In addition, institutional structures and arrangements should facilitate wider professional participation in the recruitment, selection, admission, counseling and retention of teacher education students. Movements toward field-based programming may be useful in some ways. Use of public school personnel in capacities such as members of admissions committees probably also can be useful.

Finally, further empirical research in this area is needed. Similar research which explores additional predictor variables or which investigates the usefulness of alternative measures of identified variables can be especially useful. In addition, such research may begin to focus investigation on teaching process variables and measures which have been found in other research to be related specifically to effectiveness. A long-term longitudinal study probably would be warranted here.

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APPENDIX

TABLE 1. Elements of Selection-Retention Criteria and Procedures in Teacher Education.

Element	Responses		Frequent Qualifiers
Teacher Education Admissions Committee	Yes	63%	Only screens "special" cases; serves appeals function only; administrative committee; makes policies versus individual decisions
	No	33%	
Formal Application for Teacher Education	Yes	91%	Part of general university application; only for students coming from another institution
	No	8%	
Overall GPA Required for Admission	2.00	48.0%	Required specifically for student teaching; required for degree as well; Use 25th %ile on SAT or ACT
	2.10 - 2.24	15.5%	
	2.25 - 2.49	18.5%	
	2.50 - 2.99	11.0%	
	3.00 - 3.24	1.5%	
	3.25+	0.5%	
	($\bar{x}$=2.16)		
Pre-Admissions Interviews	Yes	40%	Only for "special" candidates; function performed by advisor versus faculty member; function performed by administrator; included as part of "exploratory" course
	No	46%	
Recommendations Required			
Elementary Majors	from A & S Faculty	13%	Includes health officer; Includes cooperating personnel from prior field experiences; Require individual statement of absence of legal problems; Use "personality record" prepared by high school guidance counselor
	from Education Faculty	57%	
Secondary Majors	from A & S Faculty	60%	
	from Education Faculty	24%	
All Majors	from High School Teachers	7%	
	Interview Team	43%	
	College Administrator	36%	
Physical Examination	Yes	41%	TB test, hearing test, speech test
	No	54%	
Identified Professional Examination(s)	Yes	17%	English test; MMPI; SCAT; Spelling test; MTAI; Survey of Study Habits; Reserve right to administer tests as "needed."
	No	80%	

Element	Responses		Frequent Qualifiers
Identified Psychological Examination(s)	Yes 13% No 84%		Myers-Briggs; Edwards Personal Preference; MMPI; part of introductory course; questions about propriety of these measures raised
Speech and Hearing Test(s)	Yes 47% No 52%		Successful completion of speech course
Use of Admissions Quota	Yes 14% No 81%		
Possibility of Multiple Applications	Yes 89% No 5%		If initial rejection based on scholarships; limited to two trials; issue has never needed to be raised
Bases for Non-Admittance	Scholarships English Usage Personal Integrity Personality Speech Habits Health Spelling Ability Knowledge of Contemporary Affairs None	75% 63% 62% 61% 57% 56% 44% 24% 25%	Includes grooming and dress; includes social maturity; includes interest in teaching; includes emotional adjustment; includes ability to communicate/interact; includes successful early field experience; includes creativity and self-confidence; includes leadership ability
Deny Admission on Basis of Selection Criteria	Yes 91% No 5%		Mostly on GPA grounds; almost never happens; provisionally accept those who persist
Alternative Admissions/Selection Procedure(s)	Yes 11% No 76%		Based entirely on scholarship; use of "individual de-selection"; use of "performance-based program"

Summarized from: James A. Carpenter, "Survey of the Criteria for the Selection of Undergraduate Candidates for Admission to Teacher Training," (Bowling Green, Kentucky: Western Kentucky University, 1973), pp. 4-52.

TABLE 2. Sample/Population of Applicants to a Pre-Service Teacher Education Program.

YEAR	MAIN		REGIONAL	
	ACCEPT	DENY	ACCEPT	DENY
71-72	9 / 48	5 / 26	0 / 0	0 / 0
72-73	48 / 265	38 / 234	8 / 46	6 / 30
73-74	42 / 241	19 / 106	31 / 184	7 / 43
74-75	43 / 243	22 / 133	18 / 102	10 / 53
75-76	56 / 320	6 / 32	23 / 147	0 / 12
TOTAL	198 / 1117	90 / 531	80 / 479	24 / 138

	SAMPLE	TOTAL
ACCEPT	278	1596
DENY	113	667
COMBINED	391	2263

TABLE 3. Data Categories and Sources Identifying 178 Variables in Selection-Retention in Teacher Education.

	A. Application	N
01	Age	380
02	Credit Hours	370
03	Grade-point Average	381
	Standardized Test Scores:	
04	Mathematics	385
05	Science	385
06	English	385
	Course Grades:	
07	Basic Mathematics	91
08	Mathematics for Teachers	172
09	English Composition	193
10	Biology Survey	209
11	Psychology of Learning Survey	141
	Freshman Early Experiencing:	
12	Field Experience	192
13	Seminar	187
14	Personal Beliefs Inventory	329
	Interview Ratings:	
15	Background Experience	343
16	Written Skills	345
17	Imaginative Thinking	346
18	Organization/Development of Ideas	346
19	Insight: Stability/Self-Image	346
20	Intellectual Development: Creativity	348
21	Social Development	347
22	Overall	336
	Non-Continuous Factors:	
112	Camous Group	391
113	Admittance Decision	391
114	Application Year	391
115	Campus	390
116	Application Trial	390
117	Sex	352
118	Minority Group Membership Status	388
119	Academic Origin	379
	B. Professional Program Experience	
23	Total Credit Hours	266
24	Grade-point Average	266
	Course Grades:	
25	Child Growth and Development	204
26	Conceptions of Teaching	207
27	Children's Literature	167
28	Kindergarten-Primary Methods	78
29	Elementary Methods: Mathematics	172
30	Elementary Methods: Language Arts	169
31	Elementary Methods: Social Studies	167
32	Elementary Methods: Science	169
33	Elementary Methods: Reading	169
34	Student Teaching	133
35	Elementary Methods: Fine Arts	168
36	Elementary Methods: Music	148
37	Elementary Methods: Health Educ	178
38	Elementary Methods: Physical Ed	167
	C. Student Teaching Ratings	
39	General scholarship	63
40	Use of correct grammar, spelling, vocabulary	63
41	Handwriting	63
42	Ability to teach fundamental concepts in skill subjects	63
43	Ability to enrich textbook variety in methods of presentation	63
44	Use of independent work activities for reinforcement	63
45	Use of independent work activities for enrichment	63
46	Recognition of individual needs	63
47	Ability to meet individual needs	63
48	Use of aids—films, filmstrips, records, TV	63
49	Ability to utilize incidental teaching opportunities	63
50	Ability to plan and execute unit of study/focal interests	63
	Relationships with pupils:	
51	Pupil interaction and interest	63
52	Balance in teacher/pupil participation	63
53	Skill in questioning	63
54	Motivation and challenge	63
55	Positive Non-verbal communication	63
56	Rapport with children	63
57	Understanding of child growth and development	63
58	Lessons relevant to students' ability and achievement	63
59	Ability to Evaluate	63
60	Ability to evaluate pupils	63
61	Ability to evaluate lessons	63
	Professional Qualities:	
62	Organizational skills	63
63	Handling routines	63
64	Reports—prompt, accurate	63
65	Physical conditions	63
66	Care of room	63
67	Bulletin boards	63
68	Interest centers	63
69	Added resources	63
70	Classroom management	63
71	Leading toward self-discipline	63
72	Effective learning environment	63
73	Pupil understandings of teacher expectancies	63
74	Timing	63
75	Pacing	63
76	Anticipation of behavior	63
77	Lesson plans	63
78	Behavioral objectives	63
79	Procedures and materials	63
80	Effective evaluations	63
81	Rapport with staff members	63
82	Professional commitment	63

D. ACT Scores

83	English	83
84	Mathematics	83
85	Natural Sciences	83
86	Social Sciences	83
87	Composite	83

E. Personality Measures

Myers-Briggs Scales:

88	Extrovert	115
89	Introvert	115
90	Sensing	115
91	Intuitive	115
92	Thinking	115
93	Feeling	115
94	Judging	115
95	Perceptive	115

Edwards Scales:

96	Achievement	122
97	Deference	122
98	Order	122
99	Exhibition	122
100	Antonomy	122
101	Affiliation	122
102	Intraception	122
103	Succorance	122
104	Dominance	122
105	Abasement	122
106	Nurturance	122
107	Change	122
108	Endurance	122
109	Heterosexuality	122
110	Aggression	122
111	Consistency	122

F. Follow-up Evaluation

120	Appearance--appropriate dress, hair style, grooming, etc.	123
122	Voice--quality, pitch, use as tool in communication	122
123	Physical stamina	116
124	Enthusiasm and drive	123
125	Attendance	121
126	Emotional stability and maturity	121
127	Self concept	121
128	Acceptance and follow-through of constructive criticism	122
129	Dependability	123
130	Promptness	122
131	Assumes responsibility	121
132	Rapport	109
133	...with staff members	122
134	...with parents	121
135	Integrity	122
136	Self-evaluation	119
137-156:	See 39-58	71-124
157-158:	See 60-61	123
159-177:	See 62-80	93-123
178:	See 82	121

TABLE 4. Elements of Selection-Retention Criteria and Procedures in 44 Ohio Teacher Education Program Units.

Criteria

Intellectual/Academic (N=42):

Grade-point Average	25
Specified Course Performance	10
ACT/SAT Scores	07
Verbal Competencies	05
High School Rank	05
High School Diploma	02
High School Grades	01
Specified Course Completion	01

Skills (N=22):

Verbal Competencies	06
Specified Course Completion	06
Freshman Early Experience	05
Content Area Mastery	03
Specified Professional Competencies	03
Absence of Speech Defects	01
Arts/Music Competencies	01
Handwriting Competencies	01

Attitudes/Values (N=22):

None Specified	16
Effective Human Relations	02
Dependability	01
Initiative	01
Commitment	01
Interest	01
Specific MTAI Score	01
Philosophy of Education	01

Procedures (N=41)

Application Form	25
Review Committee	10
Written Recommendations	06
Special Administrative Review	06
Interview/Conference	06
Specified Special Training	06
Specified Course Completion	04
Review by Entire Department	04
No Special Procedures	03
Self-Selection through Freshman Early Experience	03
Health Examination	02
Applicant's Preparation of Portfolio	01

Instrumentation (N=21)

Freshman Early Experience Evaluations	21
Specified Course Grades	21
Recommendations	21
SAT/ACT Scores	20
High School Grade-point Avg.	19
Work Experience Records	16
Interview Ratings	13
Special Testing	06

Application/Entry Times (N=44)

	Apply	Enter
High School Years	05	--
Freshman Year	17	08
Sophomore Year	16	17
Junior Year	01	13
Senior Year	--	01
None Specified	05	05

Admissions Review

Date (N=39):

1960's	09	1974	05
1970	03	1975	04
1971	--	1976	05
1972	04	1977	02
1973	03	Annual	04

Specific On-Going Mechanisms (N=34):

Special Committee	14
Regular Faculty Review	12
None	09
Student Initiative	03
Dean's Action	02

Follow-Up of Graduates (N=40):

Yes	
Questionnaire(s)	27
via Placement Service Contact	03
Periodic Task Force Study	03
via Accreditation/Approval Self Study	01
On-Site Assessments	01
No	05

TABLE 5. Selection Criteria Employed in Sample Teacher Education Program.

	Responses[a]		
	1	2	3
Cumulative Grade-point Average	15	09	13
Grades in Specified Courses (Basic Mathematics; English Composition; Learning theory; Sciences Survey)	13	02	
Standardized Test Scores (Mathematics, English, Science)	15	07	06
Biographical Inventory	14	05	06
Interview Ratings (Personality and Experience Variables)	15	06	12
Personal Beliefs Inventory	03		
Freshman Early Experience Evaluations	09	03	04
Written Recommendations	13	02	04
Demographic Factors:		01	
Sex	02		
Campus	11		
Minority Status	03		
None		06	

[a]
1: Routinely Examined (N=15)
2: Special Attention (if any)
3: Relative Weight

TABLE 6. Selected Significant Correlations of 44 Student Teaching Ratings and 28 Potential Predictors.

Predictors	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
02			-.371*													
04									-.365*							
05			.358*													
07									-.594*	-.589*		-.784**	-.633*	-.590*	-.711**	
08			.363*													
09						.355*										
10					.302*											
11	.679*			.465*	.861**	.527*	.795**	.481*	.478*		.592*	.618*	.573*		.637**	.619**
14																
15							.419**					.319**				
16			.301**			.302*	.330*									
17							.442**									
18			.308**			.306*	.407**									
19						.400**	.494**	.311**	.301**	.302**		.334**	.371**	.345**		
20							.367*	.326**				.323**				
21		.303*				.307*	.372*					.335**				
22						.301*	.418**					.356**				
24																
27																

Potential	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
28		.330*			-.449**											
29																
33	.325*	.343*	.331**													
37							.337*									
85								-.331*	-.353*							
88												.354*				
89												-.356*				
90						.375*	.348*									
98																
99														.398*		
102																
103																
105										.489*				-.403*		
107												.498*			.386*	
108	-.411*			-.427*	-.391*		-.436*		-.412*			-.599*			-.439*	
109																
110																
111																

Note: Individual variable identifiers in Tables 6 through 8 are those assigned in Table 3.

Student Teaching Ratings

Predictors	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
02													-.320*			
04																
05																
07															-.580*	
08													.411*			
09																
10					.456*									.353*		
11							.540*		.549*	.549*	.894**	.711**	.501*	.771**	.754**	.590*
14				-.365**	-.325*											
15										.319**	.331*			.338**	.494**	
16													.329**		.416**	
17													.343**	.338**	.421**	
18													.392**		.404**	
19		.319**	.323**		.554**	.343*	.347**	.346**	.303*	.391**	.374**	.374**	.321**	.402**	.600**	.402**
20							.304**						.348**	.326**	.431**	
21						.307*	.352**	.356**	.472**	.356**	.312*		.387**	.361**	.559**	.305*
22					.336*	.302*	.341**		.391**	.367**	.333*		.380**	.395**	.585**	.351**
24					.377**					.354**	.409**					
27																

Potential	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
28										.331*						
29													.320*			
33									.342**		.406**		.324**			
37										.321**				.382**		.340*
85																-.414*
88																
89																
90																
98	.563**					.582**										
99	.430*	.462*														
102					.715**							.440*				
103											-.537*	-.396*				
105		-.404*				-.438*										
107																
108			-.501*		-.626*									-.380*		
109											-.483*					
110																
111																

Predictors	71	72	73	74	75	76	77	78	79	80	81	82
02												
04												
05												
07												-.532*
08				.350*								
09												
10												
11			.527*		.570*	.577*	.586*		.769**	.576*		.646**
14						-.403**						
15									.301*			
16												
17												
18												
19		.321**	.432**	.304**			.345**					
20												
21			.300**				.343**		.338**	.308**		
22			.327**						.313**	.301*	.311**	
24												
27	.306**	.305**										

Potential	71	72	73	74	75	76	77	78	79	80	81	82
28	-.354*											
29												
33												
37									.300*			
85		-.323*										
88												
89												
90												
98		.449*										
99												
102												
103												
105						-.425*						
107												
108								-.402*				
109												
110					-.487*							
111	.434*											

*p < .05
**p < .01

TABLE 7. F-ratios for Selected Student Teaching Ratings.

	Factor				
Rating	112 (df=1,61)	114 (df=4,58)	115 (df=4,57)	117 (df=1,60)	119 (df=2,56)
43				11.531**	
45				5.009*	
59		3.298*			
60	17.269**		5.052**		
65				4.705*	4.488*
66				5.486*	
67				7.456**	
69	4.077*				
70					4.203*

*$p < .05$
**$p < .01$

TABLE 8. Regression Analyses for Five Factors and Total Student Teaching Ratings.

Predictor Variable	Regression Coefficient	Standard Error	Increase in R^2
FACTOR I: 39-41 (Constant = 5.291)			
90	.017	.008	.009
85	-.021	.012	.007
14	.003	.002	.005
18	.009	.015	.004
20	-.022	.015	.004
21	.018	.015	.004
107	.015	.013	.003
15	-.013	.010	.003
102	.014	.014	.002
103	-.012	.015	.002
10	-.063	.070	.002
11	.057	.065	.002
108	-.010	.014	.001
37	-.055	.078	.001
33	.103	.119	.001
19	.008	.013	.001
24	-.001	.002	.001
08	.031	.063	.001
FACTOR II: 42-48, 50 (Constant = 13.299)			
90	.040	.015	.014
107	.059	.025	.015
108	-.064	.026	.015
103	-.051	.028	.011
33	.535	.223	.010
24	-.005	.003	.009
07	-.177	.127	.005
102	.026	.027	.004
85	-.023	.023	.003
17	.030	.027	.003
18	-.024	.028	.002
08	-.090	.117	.002
23	.001	.002	.001
105	.029	.032	.001
99	.026	.039	.001
14	-.003	.004	.001
11	.077	.120	.001
FACTOR III: 51-61 (Constant = 19.029)			
19	.025	.032	.013
07	-.357	.171	.011
90	.044	.021	.010
107	.063	.034	.009
28	-.377	.266	.008
105	.062	.043	.005
27	.283	.198	.005
99	.054	.053	.005
14	-.010	.006	.005
24	-.003	.004	.004
103	-.053	.038	.003
10	-.179	.177	.002
98	-.036	.042	.002
02	.005	.005	.002
15	-.039	.026	.002
22	.021	.043	.003
102	.034	.036	.002
08	-.159	.157	.002
21	.021	.038	.001
108	-.002	.036	.001
23	-.002	.003	.001
20	.021	.036	.001

FACTOR IV: 62-72
(Constant = 23.835)

19	.062	.032	.016
85	-.058	.031	.010
102	.065	.036	.009
90	.032	.021	.007
24	.005	.004	.006
16	-.037	.033	.006
17	.035	.036	.003
15	-.032	.026	.003
99	.043	.053	.002
105	.031	.044	.002
33	.265	.301	.002
98	.030	.042	.001
11	.145	.166	.001
37	.140	.196	.001
18	-.025	.038	.001
21	.033	.038	.001
14	-.003	.006	.001

FACTOR V: 73-82
(Constant = 19.627)

19	.069	.028	.023
07	-.306	.151	.011
27	.356	.176	.010
14	-.008	.005	.006
37	.208	.172	.005
99	.044	.046	.005
90	.023	.018	.003
108	-.037	.031	.002
107	.027	.029	.002
28	-.241	.234	.002
20	-.036	.032	.002
17	.020	.031	.003
22	-.040	.038	.001
10	-.136	.156	.001
23	.002	.002	.001
11	.111	.144	.001
21	.019	.032	.001

TOTAL: 39-48, 50-82

19	.179	.093	.020
90	.156	.060	.014
07	-.814	.494	.007
102	.154	.105	.006
107	.157	.097	.007
99	.158	.153	.005
88	-.132	.091	.005
103	-.134	.108	.004
108	-.147	.103	.005
27	.630	.580	.003
28	-.849	.769	.003
14	-.022	.017	.002
33	.883	.862	.002
105	.112	.125	.002
15	.084	.073	.002
21	.095	.109	.002
10	-.429	.513	.002
02	.010	.016	.002